REMARKS

Claims 1, 3-7 and 9 -16 are pending. Claim 1 has been amended to recite that communication of the sign of the difference between the first network timing information and the second network timing information is to <u>other computer nodes in the first network</u> in order to allow <u>the other computer nodes in the first network</u> to alter their network timing information. Claim 1 has also been amended to recite that the alteration of the network timing information by the other computer nodes is <u>directed by the sign</u> of the difference and where the network timing difference is reduced, the reduction is <u>responsive to the sign of the difference received</u> in sufficiently small predetermined step values <u>in accordance with the sign.</u> A minor clarifying amendment has also been made to the final line of claim 1.Corresponding similar amendments have been made to claims 7 and 10 to ensure consistency between the independent claims. Furthermore, new claims 11-16 are being added and are directed to the features of differences between communication cycles. No new matter is being added and all amendments have been made for clarity purposes.

In numbered paragraphs 2 and 3 on page 2 of the Office Action, Claims 1, 3-7, 9, and 10 are rejected under U.S.C. 103(a) as being unpatentable over US patent no. 7,058,729 (hereinafter referred to as "Le Scolan") in view of US patent no. 5,724,397 (hereinafter referred to as "Torsti").

As mentioned in Applicant's previous Amendment, Le Scolan relates to a method of synchronizing between two networks (Col. 1, lines 8-9). In particular, Le Scolan is concerned with solving problems associated with the synchronization of two IEEE 1394-1995 buses via a radio frequency signal (col. 3, lines 43-54, col. 4, lines 30-52, and Figure 2). Le Scolan teaches the synchronization of two buses (networks) to be carried out in the following manner.

Col. 13, line 1-col. 14, line 15 (and Figures 5a and 5b) explains that a first interconnection node, A, of a first network measures a time difference by an associated first network cycle master between two frames in the first network and sends the measured value inside a frame, which a second interconnection node, B, of a second network is able to receive via a radio frequency signal. At the second interconnection node, B, the second interconnection node, B, makes the same

measurement based on the received radio frequency signal (col. 14, lines 19-55) and calculates the difference between the time measurement performed by the first interconnection node, A, and the second interconnection node, B (col. 15, lines 18-31). The result is the clock difference between the first and second interconnection nodes A and B. Based upon the assumption that the first interconnection node A is synchronized to the first network cycle master of the first network and the second interconnection node, B, is synchronized to an associated network cycle master for the second network, the result characterizes a frequency difference (col. 15, lines 33-36).

Since the first and second networks described in Le Scolan have respective network cycle masters, for each network a single node dictates the timing in the network. Consequently, adjustment of the timing of the second network so as to be in synchronism with the first network is simply a matter of adjusting the network cycle master of the second network. All other nodes in the second network then follow the timing dictated by the network cycle master (col. 15, lines 45-48).

Torsti relates to a method for synchronizing a receiver with the frequency and phase of a received signal (col. 1, lines 8-10). The method of synchronization is used in connection with synchronizing a four-wire baseband modem in a multipoint network (col. 1, line 20-21), i.e. a single communications network.

As explained at col.1, lines 22-29, the method of synchronizing is used to establish and maintain a connection between a transmitter and a receiver, for instance between two baseband modems, in order to adjust a sampling frequency of the receiver in accordance with the symbols transmitted by the transmitter so that the receiver is able to make correct decisions in respect of the symbols transmitted by the transmitter. The purpose of the synchronization of the receiver is to make the symbol block of the receiver follow (as accurately as possible) the symbol clock of the transmitter and this is achieved by extending or reducing the clock cycles of the symbol clock of the receiver (col. 1, line 36-41). According to FIG. 6 of Torsti, a receiver of a baseband modem comprises a band-pass filter 1 that has a line transformer and analogue filters. The analogue filters are coupled to an analogue-to-digital converter 2 that takes samples of a signal applied to it in synchronization with a clock 3 (col.3, lines 28-29 and 35-37). According to col.3, lines 44-45, the cycles of the clock 3 can be momentarily adjusted by a PI controller 11. Delay units 12, 13 are connected successively to an output of the analogue-to-digital converter 2 in order to

produce a delay of half a symbol (col.3, lines 46-49). A decision sample S(0) is applied via an adaptive equalizer 4 to a detector 5 so that the receiver recognizes the symbol applied to it, the adaptive equalizer 4 removing any distortion existing before the moment of decision-making (col.3, lines 54-58). A decision D(0) obtained from the output of the detector 5 is applied to an adaptive decision feedback equalizer 6, a decoder and descrambler 7, and a calculator 8 (col.3, line 61-col.4, line 3).

According to col.4, lines 4-8, synchronization of the sampling frequency of the analogue-to-digital converter 2 requires the calculator 8 to receive first a reference sample S(-1) obtained from the output of the delay unit 13 and a second reference sample S(1) obtained from an output of the analogue-to-digital converter 2. The calculator 8 calculates a difference between that first and second reference samples S(-1), S(1) and a difference between the difference E (the difference between the reference samples) and a target value K, this second difference being divided by the decision D(0) or the sign of the decision D(0) in order to determine synchronization information (c.f. col.4, lines 10-14).

The synchronization information obtained from the output of calculator 8 is applied to a low-pass filter 10 and then to a so-called PI controller 11, which is used for summing (integrating) the synchronization information <u>obtained from several different symbols</u> (col.4, lines 16-17 and 20-24). As mentioned above, the PI controller 11 is used to adjust the cycle of the clock 3.

Col.4, lines 25-32 explain that that target value K is adjusted such that it changes gradually to an optimum target value (preferably zero). Importantly, the synchronization is carried out in several stages, <u>roughly</u> at first, after which the synchronization becomes increasingly accurate as the target value converges towards zero.

It is observed that the receiver of Torsti is disposed within a <u>single</u> network and does not relate to communication between two different networks. Furthermore, the output of the calculator 8 is not a difference between network timing information, but rather a difference between an error value (the difference E) and a target value K. Furthermore, the method of synchronization relies upon adjustment of the target value K, which is changed gradually towards an optimum target value; <u>this is different to executing small increments that follow a sign of a difference between network timing information.</u>

Referring to claim 1, claim 1 recites a computer node for operating in a system comprising a plurality of network clusters, wherein a number of network clusters comprise a plurality of computer nodes. Claim 1 recites that the computer node comprises:

- a synchronization unit for comparing network timing information for a first network with network timing information for a second network and
- for communicating to other computer nodes in the first network a sign of the difference between the first network timing information and the second network timing information
- to allow the other computer nodes in the first network to alter their network timing information directed by the sign of the difference
- wherein a network timing difference between the first network and the second network is reduced responsive to the sign of the difference received and in sufficiently small predetermined step values in accordance with the sign to avoid loss of local synchronization with the other computer nodes in the first network cluster.

It is submitted that the combination of Le Scolan and Torsti fails to teach that the synchronization unit is capable of communicating to other computer nodes in the first network a sign of the difference between the first network timing information and the second network timing information to allow the other computer nodes in the first network to alter their network timing information directed by the sign of the difference, and the network timing difference between the first network and the second network is reduced responsive to the sign of the difference received and in sufficiently small predetermined step values in accordance with the sign, as recited in claim 1.

In view of the reasoning provided above, Applicant submits that the combination of Le Scolan and Torsti does not render claim 1 obvious.

Claims 3-6, 11, and 12 depend from claim 1. By virtue of this dependence, claims 3-6, 11, and 12 are also not obvious.

Claim 7 is directed to a system comprising a plurality of network clusters and corresponds to the computer node of claim 1. Consequently, the arguments set forth above in support of claim 1 apply equally to claim 7. As such, it is therefore

respectfully submitted that the combination of Le Scolan and Torsti fails to teach that the synchronization unit is capable of <u>communicating to other computer nodes</u> in the first network <u>a sign of the difference</u> between the first network timing information and the second network timing information such that a network timing difference between the first network and the second network is reduced <u>by the other computer nodes in the first network responsive to the sign of the difference received</u>, and in sufficiently small predetermined step values <u>in accordance with the sign</u>, as recited in claim 7.

In view of the reasoning provided above, Applicant submits that the combination of Le Scolan and Torsti does not render claim 7 obvious.

Claims 8, 13 and 14 depend from claim 7. By virtue of this dependence, claims 8, 13 and 14 are also not obvious.

Claim 10 is directed to a method of allowing synchronization of a first network and a second network and corresponds to the computer node of claim 1. Consequently, the arguments set forth above in support of claim 1 apply equally to claim 10. As such, it is therefore respectfully submitted that the combination of Le Scolan and Torsti fails to teach <u>communication to other computer nodes in the first network</u> a sign of the difference between first network timing information and second network timing information, the network timing difference between the first network and the second network is reduced <u>by the other computer nodes in the first network responsive to the sign of the difference received</u> and in sufficiently small predetermined step values <u>in accordance with the sign, the reduction of the timing difference being directed by the sign,</u> as recited in claim 10.

In view of the reasoning provided above, Applicant submits that Le Scolan does not anticipate claim 10.

Claims 15 and 16 depend from claim 10. By virtue of this dependence, claims 15 and 16 are also not obvious.

The case is believed to be in condition for allowance and notice to such effect is respectfully requested. If there is any issue that may be resolved, the Examiner is respectfully requested to telephone the undersigned.

If Applicant has overlooked any additional fees, or if any overpayment has been made, the Commissioner is hereby authorized to credit or debit Deposit Account 503079, Freescale Semiconductor, Inc.

Respectfully submitted,

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